

Amelia Litz
PhD Candidate
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Education

- Ph.D.** Plant Biology and Conservation *Expected Graduation Winter 2024*
Northwestern University (NU) & The Chicago Botanic Garden (CBG)
- B.S.** Botany Major, Wildland and Soils Management Minor *Graduated 2017*
Humboldt State University (HSU)

Research Experience

Principal Investigator, “*The abiotic drivers of sand-dwelling bee emergence.*” Lanphere Dunes Preserve, Arcata, CA. 2021- Current.

- Designed a water exclusion experiment to test the effects of soil moisture on survival rates and emergence dates of a solitary bee, *Megachile wheeleri* to predict how sand-nesting bees in a coastal dune ecosystem will respond to changing precipitation.

Principal Investigator, “*Examining the Drivers and Consequences of Nesting Synchrony in an Subalpine Bee Community.*” Chicago Botanic Garden, Glencoe, IL. 2020- Current.

- Analyzing four years of emergence dates, reproductive successes, and floral resource abundance for a community of solitary, cavity-nesting bees in a subalpine ecosystem to understand the drivers and consequences of reproductive synchrony within and between bee species.

Principal Investigator, “*Determining the abiotic factors driving solitary, ground-nesting bee emergence.*” Rocky Mountain Biological Laboratory (RMBL), Gothic, CO. 2019- Current.

- Designed and executed a novel soil cooling experiment to study the environmental drivers of emergence in three subalpine ground-nesting bees. Results will improve our understanding of how pollination services will be affected in a rapidly changing environment.

Guest Researcher, RMBL, Gothic, CO. 2019-2020.

- Worked with a lab group to learn to document pollinator interactions for a long-term experiment analyzing pollinator network dynamics under early snowmelt treatments to assess plant-pollinator community level effects of reduced high mountain snowpack due to climate change.

Field Technician. *Humboldt State University*, Arcata, CA. 2017-2018.

- Documented the nesting biology and pollen preferences of a native, solitary ground-nesting bee, *Anthidium placitum* to assess specialist pollinator vulnerability.
- Compared pollinator interaction and tongue length data for bumble bee species in the Marble Mountains based on a historic survey to assess changes over a 25-year period.

Independent Student Researcher (REU). “*Developing an approach for testing systemic pesticides on solitary nesting bees: Effects of sulfoxaflor on Megachile rotundata.*” Blandy Experimental Farm (University of Virginia), Boyce, VA. 2016

- Developed a novel approach for testing the effect of systemic pesticides on solitary nesting bees. Exposed an agriculturally important alfalfa leaf cutter bee, *Megachile rotundata*, to a new pesticide, sulfoxaflor and assessed larval development and adult survival. National Science Foundation Research Experience for Undergraduates (REU) Program.

Field Technician. *Humboldt State University, Arcata, CA. 2015*

- Developed and executed an experimental design to determine the nesting preferences of a native, solitary ground-nesting bee, *Dianthidium subparvum* to assess pollinator vulnerability.
- Collected plant phenological data for a long-term phenology study for Redwood National and State Parks to assess changes in phenology over time in protected areas.

Educational Outreach and Community Service

Invited Speaker. “Pollinator Diversity.” *Oxnard Union High School District: Farm to School Program “Food Revolution” Speaker Series.* Oxnard, CA. 2021.

- Spoke about ecological research and pollinator diversity with a group of high schoolers followed by a discussion about supporting pollinator diversity at their school gardens, and applying for college.

Guest Instructor. “Meet a Scientist.” *CBG, Glencoe, IL. 2021.*

- Developed a lesson plan and engaged with two 5th grade classrooms in the Danville, IL school district. Led a discussion about research careers and a pollinator diversity activity.

Public Outreach Volunteer. “Going Green Matters.” *Community Festival.* Wilmette, IL. 2020.

- Engaged with homeowners in the Wilmette community about creating native pollinator habitat and maintaining floral resources.

Public Outreach Volunteer. “Unearth the Science Festival.” *CBG, Glencoe, IL. 2019.*

- Engaged with over 1000 attendees from all age groups about native pollinators and bee diversity and led an activity with an active bumble bee colony on display.

K-12 Nature Camp Instructor. *Blandy Experimental Farm (University of Virginia).* Boyce, VA. 2016.

- Designed and led an interactive activity for K-12 students outlining a solitary bee life cycle, provided an opportunity to hold male (stingless) bees, and created “bee homes” for the students to take home.

Bay to Dunes K-12 Tour Guide. *Friends of the Dunes.* Arcata, CA. 2013-2014.

- Led educational nature walks for school groups, engaging students in the natural history of bay and dune ecosystems through educational games and scavenger hunts.

Public Outreach & Volunteer Supervisor. *TreePeople.* Los Angeles, CA. 2010-2013

- Interacted with community members of all age groups at public outreach events and communicated ecosystem benefits of native plants, urban tree plantings and volunteer opportunities.
- Managed groups of volunteers during native plant restoration events in the Santa Monica Mountains. Assisted and worked with volunteers to ensure proper planting techniques and served as a resource for ecological information.

Committees

Graduate Student Curriculum Chair. *Curriculum Review Committee.* Northwestern University & CBG, Glencoe, IL. 2020-Current.

- Worked with a team to design a survey soliciting student feedback about curriculum. Analyzed survey results and redesigned the statistics aspect of the programs curriculum.
- Designed and implemented a new statistics course as part of the redesigned curriculum (*see teaching experience*).

Graduate Student Recruitment Chair. *Recruitment and Admissions Committee.* Northwestern University & CBG, Glencoe, IL. 2020-Current.

- The committee works to increase diversity, equity and inclusion in the program's recruitment and admissions process. As the recruitment chair, I organize annual graduate student events during the admissions process and act as the student contact for prospective students.

Graduate Student Advocate. *Diversity, Equity and Inclusion Committee.* RMBL, Gothic, CO. 2019- Current.

- Work with a team of colleagues and administrative staff to create an inclusive outdoor fieldwork and recreation environment. My primary responsibilities are presenting "Introduction to Hiking" talks for undergraduate students and stocking and maintaining an outdoor "Gear Exchange" closet.

Professional Development

"Professional Advancement Career Training Initiative." *Entomological Society of America.* Remote. 2021- Current.

- Currently participating in a program to guide students in identifying personal strengths and opportunities for growth in leadership and soft-skill development. Through small group discussion, professional panels, and one-on-one mentoring I am developing skills in communication, emotional intelligence, networking, management, and teamwork.

"Management for Scientists and Engineers." *Kellogg School of Management.* Northwestern University, Evanston, IL. 2021.

- Participated in a certificate program that aims to close the gap between research and management by exposing PhD students to challenges managing and leading teams, communicating with business-oriented colleagues, and understanding hurdles associated with commercialization of research. Over an eight-week intensive course I was introduced to business concepts and specific frameworks for effective management in non-profit and for-profit organizations.

"Communicating Science Beyond Academia." *Earth and Planetary Science Department.* Northwestern University, Evanston, IL. 2021.

- Combined reading, discussion, writing and peer critique to work through ways scientists can identify and break barriers to understanding scientific results and concepts. Developed methods for effective communication such as reducing jargon, developing clear and concise statements, and understanding the needs of different audiences.

"Mentored Discussions of Teaching." *Searle Center for Advancing Learning and Teaching.* Northwestern University, Evanston, IL. 2020.

- Observed faculty teaching of a large (150 student) undergraduate course and met with the instructor for one-on-one discussions of teaching perspectives and methods. Participated in group discussions on selected literature focused on pedagogical advances in teaching effectively and inclusively.

Teaching

Co-Instructor. “*Analytical Toolbox for Ecologists and Evolutionary Biologists*” PBC 499, Northwestern University. Winter 2022. (*see Curriculum Review Committee description for details.)

Teaching Assistant. “*Spring Flora*” PBC 415, Northwestern University. Spring 2021.

Teaching Assistant. “*Plant Evolution and Diversity*” PBC 401, Northwestern University. Winter 2021.

Laboratory Instructor. “*Genetics and Molecular Processes Laboratory*” BIOL_SCI 220, Northwestern University. Fall 2019.

Mentoring

Mentor: Aarya Patel. *Lakes Community High School.* 2020- Current.

Aarya worked with my lab group on Dr. Amy Iler’s plant demography project. She counted imaged viable seeds remotely. I am her direct mentor throughout her work and advised on her college application process.

Research Advisor: Luis Angel Gonzalez. *Humboldt State University.* 2021- Current.

Luis is currently co-managing my experimental set up at the Lanphere Dunes Preserve in Arcata, CA. He and Rebekah, (see below) communicate with the local US Fish and Wildlife office to gain access to the dune preserve and the produce monthly reports on the status of the experimental set up.

Research Advisor: Rebekah Fuller. *Humboldt State University.* 2021- Current.

Rebekah is currently co-managing my experiment with Luis (see above). Rebekah will join me in the field in the summer of 2022 to observe the emergence of the bees under experimental manipulations.

Presentations

Graduate Seminar Speaker Series. *Chicago Botanic Garden.* 2021.

Litz, A. (2021) “Determining the abiotic factors governing ground-nesting bee phenology.”

Graduate Seminar Speaker Series. *Chicago Botanic Garden.* 2020.

Litz, A. (2020) “Abiotic drivers of solitary, ground-nesting bee phenology.”

Poster Session. *Ecological Society of America.* 2017.

Litz A. & T. Roulston (2016) “Developing an approach for testing systemic pesticides on solitary nesting bees: Effects of sulfoxaflor on *Megachile rotundata*.”

Grants, Fellowships, Awards

- 2021. *RMBL* Graduate Fellowship Award **\$1,400**
Chicago Botanic Garden Plant Biology and Conservation Research Award **\$1,500**
- 2020. *American Alpine Club* Research Grant **\$990**
Alumnae of Northwestern University Research Grant **\$7,500**
Colorado Mountain Club Foundation Fellowship **\$750**
Chicago Botanic Garden Plant Biology and Conservation Research Award **\$1,000**
- 2019. *RMBL* Graduate Fellowship Award **\$850**
Colorado Mountain Club Foundation Fellowship **\$500**
Chicago Botanic Garden Plant Biology and Conservation Research Award **\$750**
- 2018. *Northwestern University* Graduate School University Fellowship ~ **\$32,000**
- 2016. *National Science Foundation* REU, University of Virginia ~ **\$7,000**
Blandy Experimental Farm Student Forum Best Presentation Award **\$250**
- 2012. *TreePeople's* Outreach Volunteer of the Year Award
- 2011. *TreePeople's* Santa Monica Mountain Volunteer Supervisor of the Year Award